

Remarks

The amended claims

Examiner will immediately see that the amendment to claims 6-8 affects only the language used to set forth the multiple dependency and that the claims as amended are consequently 5 fully supported by the Specification as filed.

The traversal of the rejection

Traversal of the rejection of claims 1-10

10 Applicants' Specification is titled *Obfuscation of executable code*; independent claims 1 and 2 are directed to "method[s] of obfuscating executable code" and independent claims 3, 4 and 9 are directed to "method[s] of executing obfuscated code". It is clear from the foregoing that the term *obfuscation* is central to Applicants' Specification and claims. It is defined at page 2, lines 6-8:

15 To obfuscate a program, one rewrites it in a form which does not substantially affect the manner in which the program executes, but does make the program more difficult to study.

20 Caputo's specification is titled *Pocket encrypting and authenticating communications device*; the title contains no reference to obfuscation; the *Abstract* reads as follows:

25 A portable security device is disclosed which can be carried by an individual and connected directly to telephone circuits to both authenticate that individual and encrypt data communications. The invention can operate as an electronic "token" to uniquely identify the user to a network, to a computer system or to an application program. The "token" contains the complete network interface, such as a modem, which modulates the data and provides the circuitry required for direct connection to the network. Furthermore, this "token" will preferably not permit communications to proceed until the device, and optionally the user, have been identified by the proper authentication. The token also contains all of the 30 cryptographic processing required to protect the data using data encryption or message authentication or digital signatures or any combination thereof. Thus, the present invention provides the user with all of the communications and security equipment needed for use with personal computers and electronic notebooks and eliminates the need for any other security measures and/or devices.

35 The *Abstract*, too, contains no reference to obfuscation; a Lexis search on Caputo's specification using the search term *obfusc!* found nothing; a perusal of the reference, finally, confirmed that as implied by Caputo's title and abstract and the search results, the reference is about a device that performs encryption and authentication and discloses nothing whatever

about obfuscation of executable code. Since that is the case, the reference cannot anticipate Applicants' claims 1-10 and those claims are patentable over the reference.

Traversal of the rejection of claims 11-13

5 Though these claims do not include the term "obfuscation", they are addressed to a method that is used to execute code in which encryption has been used to obfuscate Java class information in the code. The use of encryption to obfuscate Java class information is described beginning at page 9, line 39. As claimed in claim 11, the technique employs an encryption key to encrypt a construct that is defined in the Java execution environment in the executable code; it encrypts
10 the constructs in the execution environment with the same key. An encrypted construct from the executable code is compared with the encrypted constructs in the execution environment, and when a match is found, the encrypted construct is executed using the unencrypted construct in the execution environment that corresponds to the matching encrypted construct in the execution environment.

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As can be seen from the foregoing, the terms *execution environment in which the executable code executes* and *construct belonging to an execution environment* are central to claim 11. A Lexis word search of the reference on *execution* w/s *environment* found nothing. In his rejection of claim 11, as in the rejection of all of the claims, Examiner refers Applicants to 20 "figures 4-7, 11-19, and 24-32 and associated descriptions" of Caputo. The first problem here is that Caputo has 10 figures which contain a total of 17 drawing sheets. The second is that *none* of the 17 drawing sheets discloses anything which is in any way at all related to what is set forth in claim 11. In summary, FIGs. 1A-1G are addressed to the exterior form of the 25 pocket encrypting and authenticating device; FIG. 2 is a block diagram of the device; FIG. 3 shows how the device is employed in a network; FIGs. 4A and 4B show the flow of data within the device when it is used for on- and offline encryption and authentication; FIGs. 5A and B show two methods of authentication; FIGs. 6 and 7 are block diagrams showing 30 encryption and authentication; FIG. 8 shows the process of call establishment; FIGs. 9 and 10 show how data received from the network is decrypted and how data output to the network is encrypted. There is simply nothing in any of this about encryption as part of the execution of code in an execution environment. Since that is the case, Caputo also does not anticipate claim 11 or its dependent claims and those claims are patentable over the references.

More relevant references

Three of the cited references are concerned with obfuscation of code, and are thus clearly more relevant than Caputo. U.S. Patent 6,668,325, Collberg, et al., is the U.S. national stage of the PCT application cited at page 2, lines 18 and 19 of Applicants' *Description of related art*. U.S. 5 patent 6,102,966, Tyma, sets forth a method for renaming identifiers in Java code. U.S. patent 6,779,114, Chow, describes techniques for obfuscating the flow of control in a Java program.

Conclusion

Applicants have amended claim 6-8 to overcome the objections thereto under 37 C.F.R. 10 1.75(c) and have traversed the rejections based on Caputo. Applicants have thereby been completely responsive to Examiner's Office action of 6/21/06 as required by 37 C.F.R. 1.111(b) and respectfully request that Examiner continue with his examination as provided by 37 C.F.R. 1.111(a). Applicants hereby requesting a one-month extension of time under 37 C.F.R. 1.136. The requisite fee accompanies this response.

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Respectfully submitted,

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